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The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* WILLIAM L. BOWDEN, KLAUS BRANDT,
IGNACIO CHI, OU MAO,
BRIAN MCGOVERN, and RIMMA A. SIROTINA

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Appeal 2008-0446
Application 10/648,801
Technology Center 1700

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Decided: January 15, 2008

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Before BRADLEY R. GARRIS, LINDA M. GAUDETTE, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

1Appellants appeal under 35 U.S.C. § 134 the final rejection of claim 25. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

INTRODUCTION

Appellants disclose a lithium battery comprising, in relevant part, a cathode including a mixture of an irreversible high capacity material including carbon fluoride and a reversible low capacity material including a

lithiated manganese dioxide, wherein the lithiated manganese dioxide and the carbon fluoride are blended (claim 25).

Claim 25 is reproduced below:

25. A primary lithium battery comprising; [*sic* :]

a cathode including a mixture of a[n] irreversible high capacity material including a carbon fluoride and a reversible low capacity material including a lithiated manganese dioxide, wherein the lithiated manganese dioxide and the carbon fluoride are blended;

an anode including lithium; and

a separator between the cathode and the anode.

The Examiner relies on the following prior art references as evidence of unpatentability:

| | | |
|---|---|---|
| Guidi | EP 1 326 295 A2 | Jul. 9, 2003 |
| Roy | US 2003/0134188 A1 | Jul. 17, 2003 |

The rejections as presented by the Examiner are as follows:

1. Claim 25 is rejected under 35 U.S.C. § 102(a) as being unpatentable over Guidi.
2. Claim 25 is rejected under 35 U.S.C. § 102(e) as being unpatentable over Roy.

## OPINION

### 35 U.S.C. § 102 REJECTION OVER GUIDI

The Examiner finds that Guidi discloses all the claim features including the claimed "mixture" and blending of the cathode materials (Ans. 3-5). Regarding the "mixture" and "blended" claim features, the Examiner

finds that Guidi discloses that the first active cathode material (i.e., lithiated manganese dioxide) 36, 38 and the second cathode material (i.e., carbon fluoride) 40 are pressed together so that they touch at their periphery such that the first and second active cathode materials form "an interface including a blended mixture of [the] respective active materials" (Ans. 4).

Appellants argue that Guidi does not disclose a cathode structure in which carbon fluoride and lithiated manganese dioxide are part of a mixture (Br. 6). Appellants contend that the Examiner speculates that contact between the carbon fluoride and lithiated manganese dioxide promotes mixing (Br. 6). Appellants argue that Guidi does not disclose that the carbon fluoride and lithiated manganese dioxide are blended (Br. 7). Finally, Appellants contend that the Examiner's interpretation of "mixture" is not reasonable because it is not consistent with Appellants' Specification (Reply Br. 3).

We have considered all of Appellants' arguments and are unpersuaded for the reasons below.

We begin our analysis by construing Appellants' claim 25. We focus on the disputed claim terms "mixture" and "blended."

During examination, claim terms are given their broadest reasonable interpretation consistent with the Specification. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The Patent and Trademark Office applies to the claim terms the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by

the written description contained in the applicants' Specification. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

Appellants have not defined the terms "mixture" or "blended" in their Specification. Rather, Appellants merely indicate that the carbon fluoride and lithiated manganese dioxide can be blended (Specification 2: 6-7). Appellants describe in Example 2 that the cathode is a "mixture" that includes active material (i.e., carbon fluoride and lithiated manganese dioxide) in various ratios (Specification 11). As the Examiner noted, Appellants' Specification does not indicate any particular degree of mixing for the cathode mixture (e.g., whether an intimate, uniform mixture of the active materials is formed) (Ans. 10). From these disclosures, we understand Appellants to describe that the claim terms "mixture" and "blended" refer to a physical mixture of the carbon fluoride and lithiated manganese dioxide. Appellants agree that their claim terms "mixture" and "blended" include a physical mixture of carbon fluoride and lithiated manganese dioxide (Reply Br. 3).

The Examiner has provided definitions of the terms "mixture" and "blend" on page 9 of the Answer. Specifically, "mixture" may be defined as "a portion of matter consisting of two or more components in varying proportions that retain their own properties" and "blend" may be defined as "to combine or associate separate constituents" (Ans. 9). The Examiner's definitions of "mixture" and "blend" are consistent with Appellants' description in their Specification of the physical mixture formed by the carbon fluoride and lithiated manganese dioxide.

Accordingly, based on Appellants' Specification and the definitions provided by the Examiner, we construe the claim term "mixture" as a

portion of matter consisting of two or more components in varying proportions that retain their own properties so as to form a physical combination of the components (i.e., a physical mixture) and the claim term "blended" as combining or associating separate constituents so as to form a physical mixture.

Guidi discloses that before the battery assemblies 30A and 30B are folded, they are compressed such that the cathode active materials 36, 38 expand substantially to the size of the second cathode material 40 (Guidi, col. 7, ll. 41-45). Guidi further discloses that second cathode material 40 expands during the assembly compression (Guidi, col. 7, ll. 45-48). Guidi discloses that after being compressed the active materials 36, 38, and 40 touch at their peripheries (Guidi, col. 7, ll. 49-52).

Applying our construction of the claim terms "mixture" and "blend" to Guidi, we determine that Guidi discloses the argued claim features. Specifically, Guidi's disclosure to compress the first active materials 36, 38, and the second active material 40 such that the active materials 36, 38, and 40 are expanded so as to touch one another constitutes a "mixture." Guidi's "mixture" is a portion of matter (i.e., cathode material) consisting of two components (i.e., first cathode active materials 36, 38, and second cathode active material 40) in varying proportions that retain their own properties (i.e., second active material 40 has a high energy density and the first active materials 36 and 38 have a low energy density) so as to form a physical combination of the first and second active cathode materials (i.e., lithiated manganese dioxide and carbon fluoride, respectively, are physically combined by having the layers touch at their peripheries).

Moreover, Guidi "blends" the first and second cathode active materials. That is, Guidi associates separate constituents of the cathode. Specifically, Guidi's first active materials 36 and 38 are associated with the second cathode active material 40 (i.e., they touch at their peripheries) due to the compression of the assembly.

Therefore, contrary to Appellants' arguments, we determine that Guidi discloses forming a cathode "mixture" wherein the carbon fluoride and lithidated manganese dioxide are "blended." Furthermore, contrary to Appellants' argument, the Examiner's construction of the claim term "mixture" is reasonable and consistent with Appellants' Specification for the reasons given above. *Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d at 1364.

The Examiner's determination that mixing occurs at the interface of the first cathode active materials 36, 38, and second cathode active material 40 is not based on speculation as argued by Appellants. Rather, the Examiner bases his finding on Guidi's disclosures to compress and expand the first and second active materials so that they come into contact while under compression (Ans. 3-5). We agree with the Examiner that Guidi's compressing so as to expand (i.e., force) the first and second active materials 36, 38, and 40 into contact indicates that some degree of mixing occurs due to the first and second active materials being forced together. Appellants' Specification and claims do not indicate or require any particular degree of mixing.

Accordingly, we sustain the Examiner's § 102(a) rejection of claim 25 over Guidi.

35 U.S.C. § 102(e) REJECTION OVER ROY

Regarding the claim phrase "cathode mixture," the Examiner finds that in Roy's battery, ions dissociate from the first and second cathode active materials and migrate via an aprotic solvent and salts in the solvent so as to form a "blended mixture" (i.e., the first and second cathode materials are "electrochemically mixed") (Ans. 6-7).

Appellants argue that the Examiner's construction of "mixture" as including cathode materials that are "electrochemically mixed" is inconsistent with how the term "mixture" is used in Appellants' Specification (Br. 7). We agree.

As noted above in our construction of the claim term "mixture," Appellants' Specification indicates a physical mixture of the first and second active cathode materials, not an electrochemical mixture. Therefore, the Examiner's construction of the claim term "mixture" is not consistent with Appellants' Specification. *Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d at 1364.

Accordingly, because the § 102(e) rejection over Roy is based on this improper construction of "mixture" and we find no disclosure in Roy that would satisfy the claim term "mixture" as properly construed above, we cannot sustain the Examiner's § 102(e) rejection of claim 25 over Roy.

DECISION

We sustain the Examiner's § 102(a) rejection of claim 25 over Guidi.

We reverse the Examiner's § 102(e) rejection of claim 25 over Roy.

The Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

PL Initials
sld

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